

Amendments To The Claims

The listing of claims presented below will replace all prior versions, and listings, of claims in the application.

Listing of claims:

1. (original) An RF front-end transceiver comprising:

an oscillator for outputting a resonant frequency signal whose frequency is controlled by a frequency control signal;
a receive amplifier for amplifying and outputting a receive RF signal;
a receive mixer for mixing the receive RF signal amplified and the resonant frequency signal to convert the receive RF signal into a receive base band signal;
a transmit mixer for mixing a transmit base band signal and the resonant frequency signal to convert the transmit base band signal into a transmit RF signal; and
a transmit amplifier for amplifying and outputting the transmit RF signal, wherein a resonant frequency of at least one of the receive amplifier, the receive mixer, the transmit mixer and the transmit amplifier is controlled by the frequency control signal.

2. (original) The RF front-end transceiver according to claim 1, wherein the frequency control signal is provided from a frequency synthesizer or a base band processor.

3. (original) An RF front-end receiver comprising:

an oscillator for outputting a resonant frequency signal whose frequency is controlled by a frequency control signal;
a receive amplifier for amplifying and outputting a receive RF signal; and

a receive mixer for mixing the receive RF signal amplified and the resonant frequency signal to convert the receive RF signal into a receive base band signal, wherein a resonant frequency of at least one of the receive amplifier and the receive mixer is controlled by the frequency control signal.

4. (original) The RF front-end receiver according to claim 3, wherein the frequency control signal is provided from a frequency synthesizer or a base band processor.

5. (original) The RF front-end receiver according to claim 3, wherein the frequency control signal includes an analog frequency control signal and a digital frequency control signal.

6. (original) The RF front-end receiver according to claim 3, wherein the frequency of the resonant frequency signal is controlled by an analog frequency control signal and a digital frequency control signal, and wherein, a resonant frequency of the receive amplifier and the receive mixer is controlled by the frequency control signal or only the digital frequency control signal.

7. (original) The RF front-end receiver according to claim 6, wherein the receive amplifier has a net input resistance controlled by the digital frequency control signal.

8. (original) An RF front-end transmitter comprising:
an oscillator for outputting a resonant frequency signal whose frequency is

controlled by a frequency control signal;

 a transmit mixer for mixing a transmit base band signal and the resonant frequency signal to convert the transmit base band signal into a transmit RF signal; and
 a transmit amplifier for amplifying and outputting the transmit RF signal, wherein a resonant frequency of at least one of the transmit mixer and the transmit amplifier is controlled by the frequency control signal.

9. (original) The RF front-end transmitter according to claim 8, wherein the frequency control signal is provided from a frequency synthesizer or a base band processor.

10. (original) The RF front-end transmitter according to claim 8, wherein the frequency control signal includes an analog frequency control signal and a digital frequency control signal.

11. (original) The RF front-end transmitter according to claim 8, wherein the frequency of the resonant frequency signal is controlled by an analog frequency control signal and a digital frequency control signal, and wherein, a resonant frequency of the transmit amplifier and the transmit mixer is controlled by the frequency control signal or only the digital frequency control signal.

12. (original) The RF front-end transmitter according to claim 11, wherein the transmit amplifier has a net input resistance controlled by the digital frequency control signal.

13. (original) An amplifier comprising:

an amplification unit for amplifying a signal inputted to an input unit and outputting the amplified signal to an output unit; and
an input resonant unit connected to the input unit, and for changing a resonant frequency in accordance with a frequency control signal, wherein
the frequency control signal is used to control a frequency of a resonant frequency signal outputted from an oscillator.

14. (original) The amplifier according to claim 13, further comprising:

an output resonant unit connected to the output unit, and for changing the resonant frequency in accordance with the frequency control signal.

15. (original) The amplifier according to claim 13, wherein the frequency control signal includes an analog frequency control signal and a digital frequency control signal.

16. (original) The amplifier according to claim 13, wherein the resonant unit is any one of a first LC tank including a inductor controlled by the digital frequency control signal and a capacitor controlled by the analog frequency control signal;

a second LC tank including a capacitor controlled by the digital frequency control signal, a capacitor controlled by the analog frequency control signal and a fixed capacitor;

a third LC tank including an inductor and a capacitor controlled by the digital frequency control signal, and a capacitor controlled by the analog frequency control

signal and a fixed inductor; and

a fourth LC tank including an inductor controlled by the digital frequency control signal, an inductor controlled by the analog frequency control signal and a fixed capacitor.

17. (original) The amplifier according to claim 13, wherein the frequency control signal includes a digital frequency control signal.

18. (original) The amplifier according to claim 13, further comprising:

a net resistance control unit connected to the input unit, and for changing the net input resistance in accordance with the frequency control signal.

19. (new) The RF front-end transceiver according to claim 1 further comprising:

a base band processor for inputting the receive base band signal and for outputting the transmit base band signal, wherein

the oscillator, the receive amplifier and the receive mixer comprising an RF front-end receiver exhibiting an input impedance;

the transmit mixer and the transmit amplifier comprising an RF front-end transmitter exhibiting an having an output impedance; and

the oscillator, the receive amplifier, the receive mixer, the transmit mixer and the transmit amplifier are controlled by the frequency control signal to substantially match an input impedance with an output impedance of the transceiver such that the transceiver transmits substantially a maximum power

over a specific frequency band.

20. (new) The RF front-end transceiver according to claim 1, wherein the frequency synthesizer comprises:

a phase frequency detector (PFD) for receiving a reference frequency, f_{REF} ;

a current pump operatively coupled to the phase frequency detector;

a low pass filter (LPF) operatively coupled to the current pump;

a digital tuner (DT) in parallel to the low pass filter and operatively coupled to the current pump;

the oscillator operatively coupled to the LPF and to the DT, wherein the oscillator is a digital analog tuning voltage controlled oscillator (DAT-VCO) for providing the output resonant frequency, f_{Lo} ;

an N divider operatively coupled to the DAT-VCO and to the PFD, wherein a digital control voltage (VDT) signal output is located between the DT and the DAT-VCO, and an analog control voltage (VAT) signal output is located between the LPF and the DAT-VCO.